Maptitude® for Redistricting
Extension for ArcGIS®

Caliper
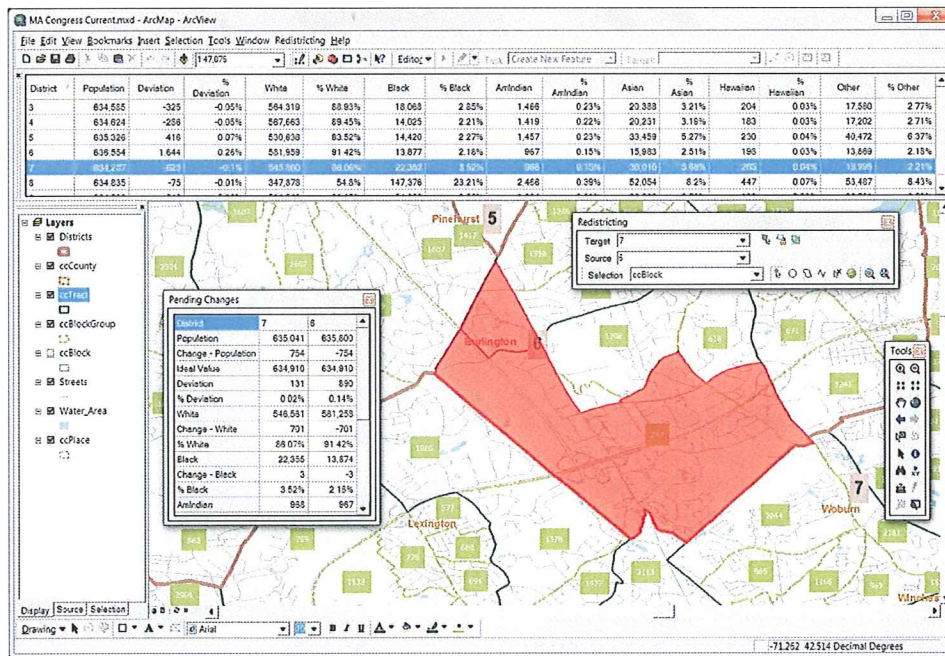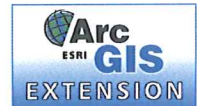
Arc ESRI GIS EXTENSION

Maptitude for Redistricting ArcGIS Extension Key Features:

- Create districts using any level of geography

- Compute control field totals and deviations

- Select any number of summary data fields and compute totals and percents

- Display the plan as district boundaries or as a unique values map

- Display the plan statistics in a scrollable data window

- Produce over 35 standard reports; add your own and customize ours

- Export the plan to an equivalency file in industry-standard file formats

- Import plans from a block-district equivalency file

- Merge sub-plans

- Compute measures of compactness

- Verify completeness and district contiguity, and zoom to problem areas

- Update historic election results to new political boundaries

- Includes all TIGER geographic layers with PL94-171 population and race data attached

Caliper Corporation's Maptitude for Redistricting technology provides professional tools for political redistricting. This technology is used by a super-majority of the state legislatures, political parties, and public interest groups. Caliper designed it with the help of redistricting professionals, state legislatures, and political parties, to provide the features redistricters want in an interface that is easy to learn and use.

Maptitude for Redistricting is now available as an **ArcGIS** extension. As a result, you have access to the redistricting functionality and ease-of-use of Maptitude for Redistricting while leveraging your in-house expertise in **ArcGIS** software and all of your existing Oracle, SQL Server, DB2, and other data through the **ArcGIS** DBMS support.

With the **ArcGIS** extension, you can integrate online content from ESRI and Microsoft's Virtual Earth to create more informative maps for building districts and more professional maps for printing. You can also export your plans to Google Earth.

The Maptitude for Redistricting **ArcGIS** extension features a Plan Manager that serves as your redistricting control center. Use it to organize plans, create any number of plan types (e.g., congressional, state house, senate, and school district), and save them as Plan Templates. To create a plan, simply choose a template or an existing plan and enter a new name. You can organize plans in libraries by plan type, user, security access, etc., and you can locate, copy, change settings, and password-protect plans.
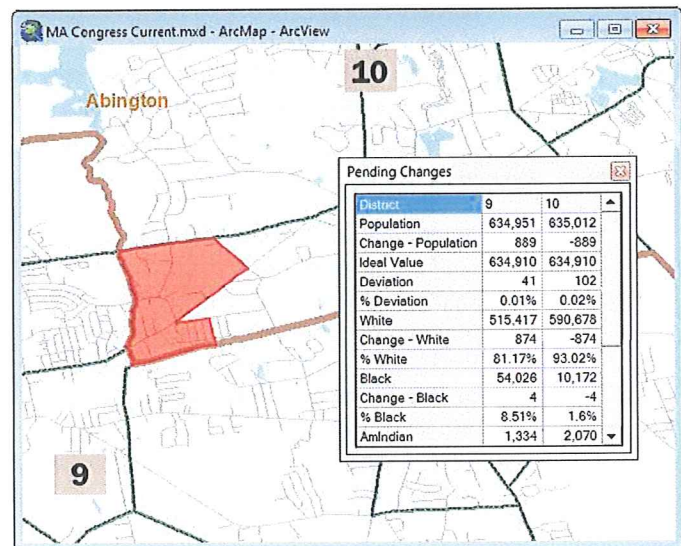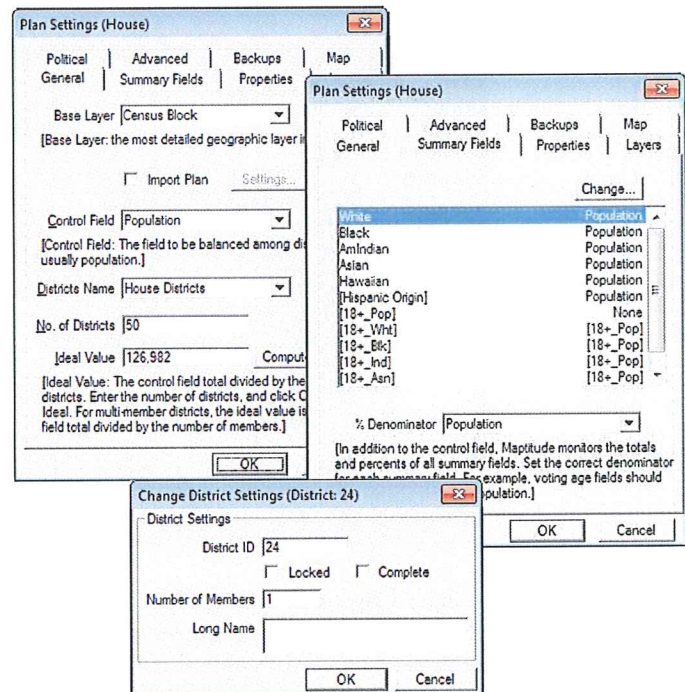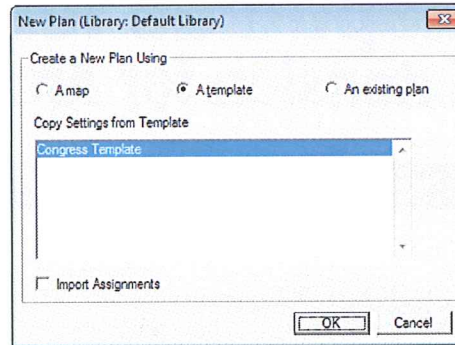
Includes a Data DVD for your jurisdiction containing all of the geographic layers from the U.S. Census TIGER map files with the official PL94-171 population, race, Hispanic ethnicity, and voting age data attached:

- Census blocks
- Census block groups
- Census tracts
- Upper and lower chamber state legislative districts
- Congressional districts
- State boundary
- County boundaries
- Incorporated place boundaries
- Minor Civil Division (MCD) boundaries
- Elementary, secondary, and unified school district boundaries
- Indian reservations
- Voting districts
- Point and area landmarks
- Water landmarks
- Utility lines
- Railroads
- Street segments
- All line features from Census TIGER/ Line® files
- In addition to the PL94-171 redistricting data, you will find Department of Justice definitions of race, special calculations such as "Any Part Black," counts of persons reporting multiple races, and more.

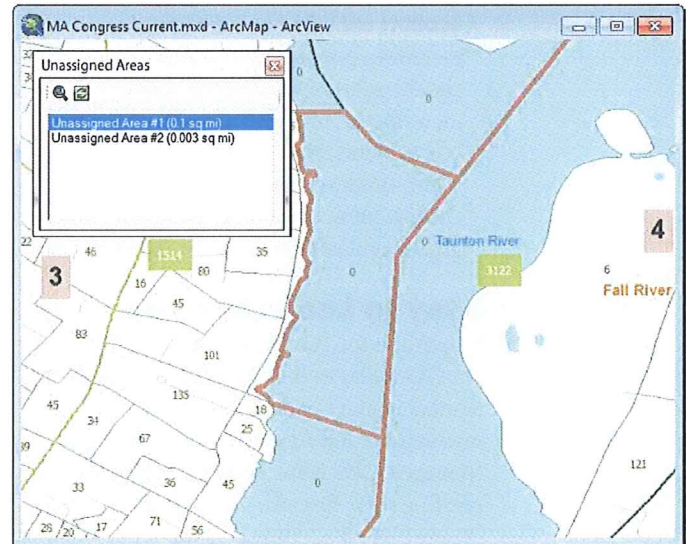Caliper provides timely updates of new data as the Census Bureau releases them.

The custom menu system and redistricting toolbox let you:

- **Create a new plan** from a map, a template, or an existing plan. You only have to enter the settings once. From then on, you can create a new plan by picking the appropriate template or existing plan.

- **Import and merge plans** created with the extension or other redistricting software.

- **Designate the control field**, number of districts, ideal value, and summary fields, and set other plan properties including plan type, creation date, password protection, and backup strategy.

- **Include any number of data fields in the same plan**; one-button toggle between field sets lets you display only the data of interest at any particular time.

- **Easily manage districts:** rename districts, handle multi-member districts, assign both an ID and a long name to districts, lock districts, and mark them completed.

- **Add areas to a target district** using feature selection tools. Select by clicking, by dragging a box, by circle, by polygon, or by line. Select features in any geographic layer, such as Census block, voting district, county, town, or school district. Limit the selection to unassigned areas, one district, or the entire jurisdiction. As you add areas to a district, Maptitude for Redistricting redraws the district boundaries and updates the control and summary fields to reflect changes to the current plan.

• **Capture the current status of a plan** as a snapshot. Each plan can have one or more snapshots organized by date and time under the same plan name. Return to any snapshot, and use it as a departure point in the evolution of the plan or as the starting point for a new plan.

• **Easily find unassigned areas** and assign them to the correct district. Automatically assign unassigned areas that are completely surrounded by the same district.

• **List all noncontiguous portions of a district**, zoom to each one, and easily assign them to the correct district.

• **Identify communities of interest**, which are geographically cohesive areas such as cities, neighborhoods, or racial or ethnic enclaves that tend to have similar interests and vote as a bloc. Keep them intact within the same district, and lock them so that you cannot accidentally reassign them to different districts. Alternatively, for communities that you do split into multiple districts, run the Communities of Interest reports to calculate the total and percent population of the community in each district.

• **Compute measures of compactness** to assess or defend the districts in a plan. Maptitude for Redistricting computes all of the recognized measures of geographic compactness including the Reock, Schwartzberg, Perimeter, Polsby-Popper, Length-Width, Population Polygon, Population Circle, and Ehrenburg metrics.

• **Export a plan to standard equivalency file** formats that can be read by other redistricting software and the Department of Justice. This is the best way to transfer a plan because every Census block is assigned to a district and there is no possibility for a mis-assignment.

Measures of Compactness

Plan Name: House
Plan Type:
Date: 2/18/2010
Time: 3:47:31PM
Administrator:

2/18/2010

DISTRICT	Reock	Schwartzberg	Perimeter
1	0.47	1.41	27.52
2	0.36	1.66	28.69
3	0.32	1.89	24.60
4	0.46	1.59	26.46
5	0.59	1.56	12.79
6	0.43	1.73	19.32
7	0.51	1.53	12.16
8	0.45	1.40	17.13
9	0.32	1.46	33.89
10	0.50	1.60	38.22
11	0.55	1.58	62.69
Sum	N/A	N/A	303.48
Min	0.32	1.40	N/A
Max	0.59	1.89	N/A
Mean	0.45	1.58	N/A
Std. Dev.	0.09	0.14	N/A

Choose Measures of Compactness

Choose Measures

Reock
Schwartzberg
Perimeter
Polsby-Popper
Length-Width
Population Polygon
Population Circle
Ehrenburg

OK   Cancel

Export of Congress 1

Block	DistrictID
060371240004000	1
060371240004001	1
060371240004002	1
060371240004003	1
060371240004004	1
060371240004005	1
060371240004006	1
060371240004007	1
060371240004008	1
060371240004009	1
060371240004010	1
060371240004011	1
060371240004012	1
060371240004013	1
060371240004014	1
060371240005000	2
060371240005001	2

• Generate and print a variety of reports
including population summary, error
check, political subdivision splits,
incumbents, plan statistics, plan
components, plan comparison,
communities of interest, measures of
compactness, and more. Create custom
reports and add them to the report menu.

Easy to Learn and Use

Maptitude for Redistricting Extension for
ArcGIS includes online help and a detailed
manual packed with step-by-step
instructions and tutorials. The Plan
Manager leads you through the process of
creating your first plan and speeds the
creation of all additional plans.

Complete Organizational Solution

With the Maptitude for Redistricting
Extension for ArcGIS Plan Manager you
can easily manage an unlimited number of
plans stored on a computer network. You
can quickly find a plan by type, creator,
date, key word, etc. The Plan Manager lets
you distribute plans for viewing and
perform plan management functions across
your organization. Data and plans can be
stored on individual machines or on one
central server with access controlled by both
the extension and the network
administration software.

Other Redistricting Services

Caliper provides database development,
hands-on training, software customization,
web design, telephone support, on-site support,
priority support, and other related consulting
services on a time and materials basis.

Ordering & Information

Please contact Howard Simkowitz, Director,
Government Services, at 202-652-1024 or
HSIMKOWITZ@CALIPER.COM for pricing and
information. You can download an order
form at WWW.CALIPER.COM/REDISTRICTING
or call Caliper at 617-527-4700 to place
your order.

Plan: House
Plan Type:
Administrator:
User:

Population Summary Report

Thursday, February 18, 2010   3:35 PM

DISTRICT	POPULATION	DEVIATION	% DEVN.	White	Black	[Hispanic Origin]
1	35,183	-90	-0.26	33,340	417	1,122
2	35,747	474	1.34	30,288	859	5,354
3	34,402	-871	-2.47	30,721	916	3,615
4	35,038	-235	-0.67	33,557	828	3,869
5	37,035	1,762	5.00	14,749	7,531	19,190
6	36,103	830	2.35	18,421	11,845	7,033
7	35,168	-105	-0.30	18,383	6,738	10,680
8	36,203	930	2.64	26,577	4,730	2,770
9	34,904	-369	-1.05	33,751	232	333
10	36,755	1,482	4.20	33,432	1,288	2,131
11	35,439	166	0.47	31,997	1,109	2,114

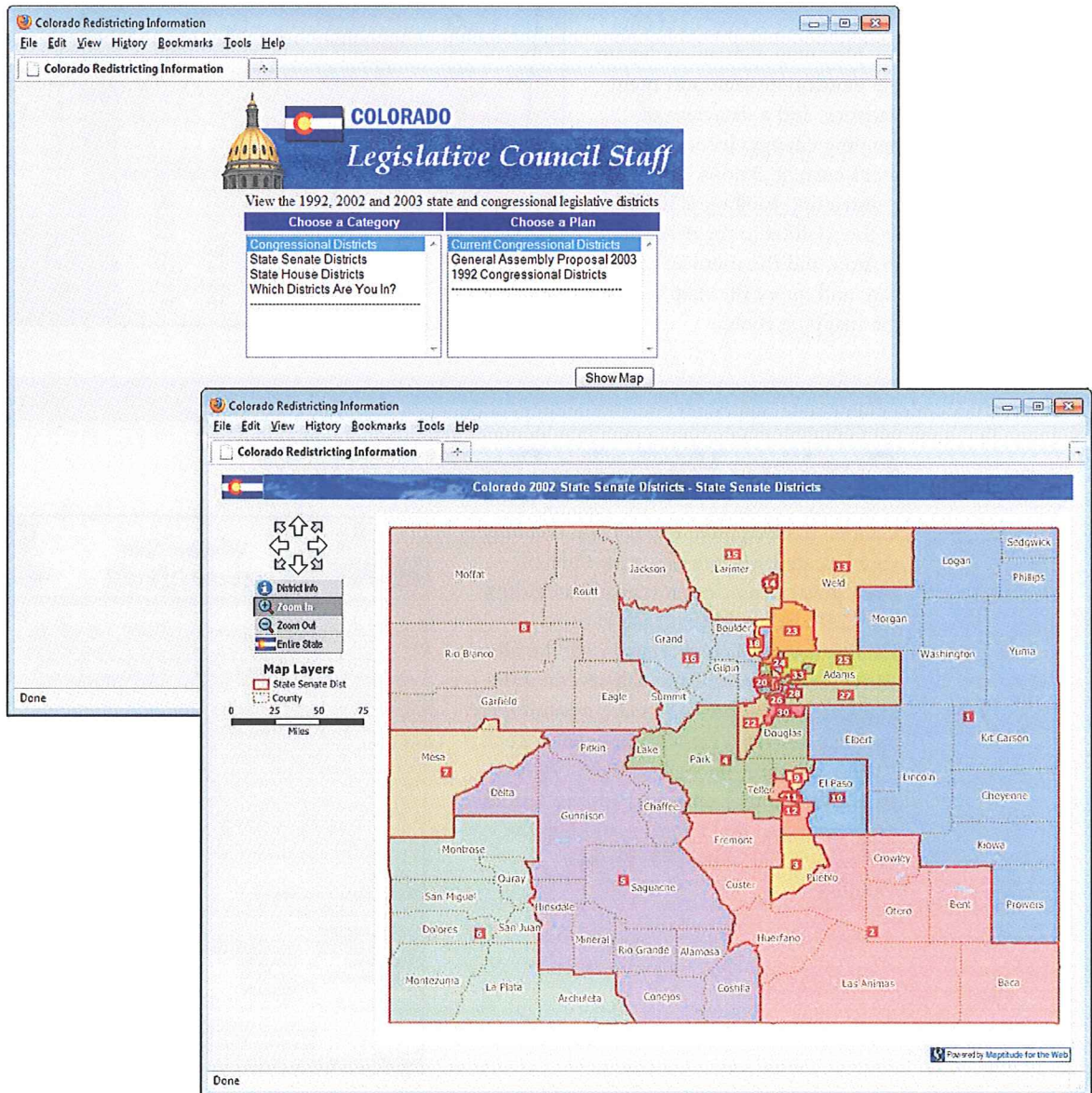|	
Total Population:	391,977
Ideal District Population:	35,273
Summary Statistics	
Population Range:	34,402 to 37,035
Ratio Range:	1.08
Absolute Range:	-871 to 1,762
Absolute Overall Range:	2,633.00
Relative Range:	-2.47% to 5.00%
Relative Overall Range:	7.46%
Absolute Mean Deviation:	664.91
Relative Mean Deviation:	1.89%
Standard Deviation:	814.89

Some states require adjustments to Census Public Law 94-171 population data to
account for prison population, college students, military personnel, or other factors. For
example, Kansas requires that the population figures reflect college students and military
personnel at their places of permanent residence. Maryland adjusts their population
counts based on prison population. Pennsylvania splits census blocks. Please contact us if
your state is planning such an adjustment and you would like assistance.

Maptitude Web Plan Publisher™

Publish Your Plans on the Internet

Maptitude for Redistricting lets you save your plans (maps, data tables, charts, layouts, and reports) as JPEG, PNG, and HTML files for static Web publishing. Caliper software also lets you add your plans to Google Earth or Google Maps and add Google Earth images to your plans in Maptitude.
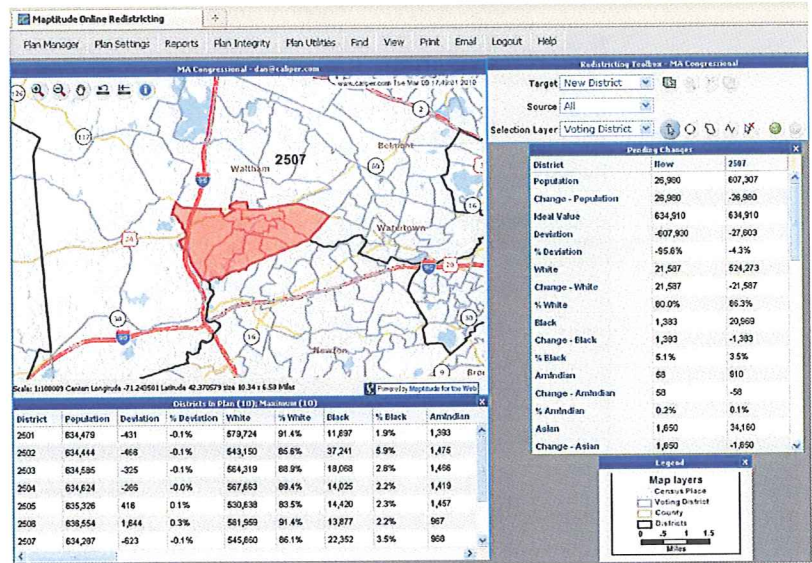
If you are looking for a more sophisticated presentation of your plans, Caliper Corporation's Maptitude Web Plan Publisher software makes it easy to publish your plans as interactive mapping applications on the Web. For example, users can locate their address on the map, pan and zoom, query the district assignments, and display tables of data from their browser.

Maptitude Online Redistricting™

Maptitude Online Redistricting is web-based redistricting software designed for governments or organizations that want to provide their members or the general public with a means to draw and report redistricting plans. Because the PC and online versions share common file formats, plans developed online can be electronically submitted to the central redistricting office, opened in the PC-based software, and analyzed to the full extent as if they had been created using the PC-based software.
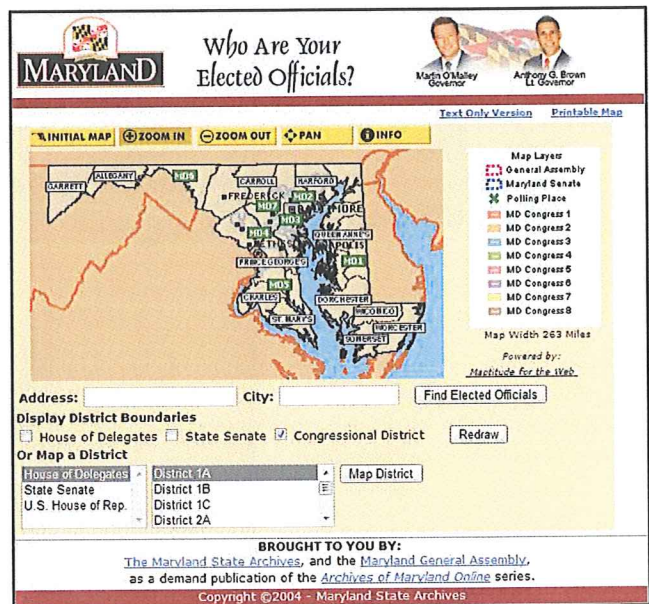
The Maptitude Online Redistricting screen contains the plan map, a dataview listing the existing districts and their statistics, and a dataview of pending changes based upon the user's current actions. The redistricting toolbox is similar to the toolbox in the desktop version, and the user can zoom, pan, and query the map using the mapping tools.

Custom Website Development

Caliper has extensive experience creating sophisticated websites for a number of large government organizations including the U.S. Census Bureau, the U.S. Department of Transportation, the Small Business Administration, and several state legislatures. Caliper can create custom web applications for your organization, such as "Who are your elected officials?" In this example, the user enters an address and the map zooms to that location and lists the elected officials with links to their websites.

Maptitude for Redistricting is used by a super-majority of the state legislatures, both national political parties, many state political parties, county and regional governments, city and local governments, elected officials, educational institutions, and public interest groups. For a more complete list, visit WWW.CALIPER.COM/REDISTRICTING/CLIENTS.HTM

National Organizations:
Democratic National Committee
Deptartment of Justice, Civil Rights Division
National Committee for an Effective Congress
National Republican Congressional Committee
Republican National Committee

State Organizations:
Alabama Democratic Party
Alabama House Majority
Alaska Division of Elections
Arizona House of Representatives
Arizona Independent Electoral Commission
Arizona Redistricting Commission
California Assembly Rules Committee
California Governor's Office
California Legislative Data Center
California Senate Minority Reapportionment
California Senate Office of Research
California State Assembly
Colorado Department of State
Colorado Governor's Office
Colorado House of Representatives
Colorado Legislative Council
Colorado Reapportionment Commission
Delaware Commissioner of Elections
Delaware Legislature
District of Columbia Republican Party
Georgia General Assembly
Georgia Office of Planning and Budget
Georgia Redistricting Services
Idaho Legislative Services
Illinois House Republican Caucus
Illinois Senate Republican Caucus
Kansas Legislative Research Department
Kentucky Legislative Research Commission
Louisiana House of Representatives
Louisiana Senate
Maine Judicial Center
Maine Legislature
Maryland Deptartment of Legislative Services
Maryland General Assembly
Maryland Office of Planning
Massachusetts House of Representatives
Massachusetts Republican Redistricting Taskforce
Massachusetts Senate
Michigan Democratic Party
Minnesota DFL
Minnesota Governor's Office
Minnesota Legislative Coordinating Commission
Minnesota Office of Planning
Minnesota Secretary of State
Minnesota Senate
Minnesota Supreme Court
Mississippi Community Policy Research
Mississippi Joint Reapportionment Committee
Missouri House of Representatives
Missouri Office of Administration
Missouri Office of Mgmt., Budget, & Planning
Missouri Senate
Nebraska Republican Party
Nevada Republican Party
New Hampshire GCIS
New Jersey Office of Legislative Services
New Mexico Republican Party
New York Empire State Development
New York Assembly Democratic Majority
New York Assembly Republican Caucus
New York Governor's Office

New York Office of Technology
New York Senate Majority
New York Senate Minority
New York State LATFOR
North Carolina General Assembly
North Dakota Legislative Council
Ohio Secretary of State
Oklahoma Governor's Office
Oklahoma Senate
Pennsylvania House Democrats
Pennsylvania Senate Democrats
Puerto Rico Supreme Court
South Carolina House of Representatives
South Carolina Senate
Tennessee Attorney General
Tennessee General Assembly
Tennessee Office of Legal Services
Texas Comptroller of Public Accounts
Texas General Land Office
Texas Legislative Council
Utah Republican Party
Vermont Legislative Council
Virginia Democratic Caucus
West Virginia Legislature
Wyoming Legislature

County & Regional Organizations:
Acadiana LA Regional Development District
Alabama Assoc. of County Commissioners
Alameda County CA Community Development
Alamosa County CO, County Clerk
Anne Arundel County MD
Anoka County MN
Barton County KS
Blount County AL, County Commission
Boone County WV Commission
Brooke County WV, County Commission
Butte County CA
Calvert County MD
Capitol Region LA Planning Commission
Cerro Gordo County IA
Chaffee County CO
Champaign County IL County Clerk
Clark County NV Manager's Office
Cobb County GA Elections
Comal County TX
Contra Costa CA Water District
Coweta County GA
Cumberland County ME
Elbert County CO
Forsyth County GA
Glenn County CA, Elections Department
Grand County CO
Hardee County FL
Hardin County KY
Harris County TX Tax Office
Hennepin County MN
Hood County TX
Jackson County MO Election Board
Jefferson County CO Clerk and Recorder
Johnson County KS
Kanawha County WV
Kent County DE
Kent County MI
Lincoln County MT
Los Angeles CA Superior Court
McCracken County KY
Miami-Dade County FL County Comms.
Mobile County AL Engineer's Office

Nassau County NY
Navajo Nation AZ
New Castle County DE
Nowata County OK, Clerk
Pasco County FL Supervisor of Elections
Pierce County WA, Elections
Polk County FL Supervisor of Elections
Putnam County FL Supervisor of Elections
Ramsey County MN
Saint Louis County MN
Saint Lucie County FL Supervisor of Elections
San Benito County CA
San Diego County Data Processing
Sanford/Lee County NC, County Commission
Santa Barbara County CA
Santa Cruz County CA, ISD Dept.
Stillwater County MT GIS
Summit County NJ Board of Elections
Sumter County FL Supervisor of Elections
Tate County MS
Trinity County CA
Trinity County TX
Vigo County IN
Westchester County NY

City Governments:
Albany NY, Common Council
Baltimore MD, City Council
Baltimore MD, Mayor's Office
Bloomington MN
Buffalo NY, City Clerk
Cambridge MD Commissioners
Champlain MN
Columbia MO
Dallas TX
Denver CO, Election Comm.
Jefferson MO
Lake Charles LA
Los Angeles CA Council
Minneapolis MN Metropolitan Council
New York NY City Council
New York NY Redistricting Comm.
Pasadena CA
Pensacola FL, Planning & Development
Phoenix AZ
San Francisco CA, Department of Elections
San Leandro CA
Temple TX
Villages FL
Westport CT

Educational Institutions:
Alabama State U. Ctr. for Leadership & Public Policy
Benedict College
Claremont McKenna College Rose Institute
Cronkite School of Journalism
CUNY Graduate Center
CUNY, Medgar Evers College
George Mason University
Georgia Institute of Technology
Georgia State University
Mississippi State University Stennis Institute
Princeton Univ. Woodrow Wilson School
Queens College
Rice University
UCLA, Dept. of Urban Planning
University of Florida
University of Georgia, Redistricting Services
University of Pennsylvania Law School

Maptitude for Redistricting was featured in a December 2003 *New Yorker* article, "The Great Election Grab," by Jeffrey Toobin.

[Assistant professor of law and political science Nathaniel] Persily zeroed in even more closely, and a little donkey popped up inside one of the census blocks. "That's where the local congressman lives, a Democrat," he explained. "We have little elephants for the Republican incumbents." [Maptitude for Redistricting] seemed easy to use, justifying the boast, on the software company's Web site, that you could "start building plans thirty minutes after opening the box."

Maptitude for Redistricting was featured in a April 24, 2001 *Wall Street Journal* article, "Software Makes Redistricting Easier, Accessible," by Will Pinkston. Nearly everyone interviewed for the article uses Maptitude for Redistricting.

In New Jersey, when a committee of five Republicans and five Democrats chosen by their parties couldn't agree on how to redraw the state's legislative boundaries, the state supreme court tapped Larry Bartels, a Princeton University professor, to break the impasse. After 10 days locked away in a hotel with the two sides, the professor emerged with a resolution: an entire state redistricting map drawn on a laptop computer, using [Maptitude for Redistricting].

Cheaper software is letting independent consultants in the game, too. George Meier, former staff director of Florida's House reapportionment committee, had to requisition $600,000 in computer software and equipment in 1991 to draft new electoral district boundaries. This year, as a redistricting expert freelancing for cities and counties in Florida [using Maptitude for Redistricting], his overhead is considerably lower: He got everything he needs loaded onto his Dell laptop for under $4,000. And Baltimore civil-rights attorney Samuel L. Walters is using [Maptitude for Redistricting] to pitch his expertise to minority groups and local governments. Mr. Walters, who worked for the NAACP during 1991's redistricting, says he expects to quickly recoup his costs.

The Rose Institute at Claremont McKenna College conducts and publishes research primarily on California government and politics. Here is what the Rose Institute has to say about Caliper Corporation in its 2005 report, "Restoring the Competitive Edge: California's Need for Redistricting Reform and the Likely Impact of Proposition 77"

[Caliper Corporation's] longstanding and generous support makes possible all of the Rose Institute's demographic, redistricting, and geographic information systems (GIS) research. Their outstanding, powerful and easy-to-use Maptitude software enables us to train our students up from GIS novices to expert users in only a few hours, and the software's extensive analytic capabilities provide the service and power needed for our work.

Caliper Corporation is a leading developer of transportation and Geographic Information System (GIS) software and applications. Caliper software is used by more than 70,000 users in over 70 countries. Caliper is the developer of the U.S. Census Bureau's MAF/TIGER Partnership Software (MTPS) that has been used by Census Bureau partners to update the addresses and geography for the 2010 Census.

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